

I claim:

1. A composition comprising, by weight:

(1) a graft copolymer comprising a backbone of a propylene polymer material having graft polymerized thereto a monomer selected from the group

consisting of (a) an ester of an acrylic acid substituted at the alpha carbon atom by a 1-3 alkyl group and (b) a combination of (i) an ester of an acrylic acid substituted at the alpha carbon atom by a 1-3 alkyl group and (ii) an ester of an unsubstituted acrylic acid, or an acrylic acid substituted at the alpha carbon atom by a 1-3 carbon alkyl group, and

(2) about 1 weight % to about 25 weight % of a fluorinated olefin polymer, wherein the ratio of the polymerized monomer to the fluorinated olefin polymer is about 25:1 to about 0.5:1.

2. The composition of claim 1 wherein the propylene polymer material is selected from the group consisting of:

(1) a homopolymer of propylene having an isotactic index greater than 80;

(2) a copolymer of propylene and an olefin selected from the group consisting of ethylene and 4-10 C alpha-olefins, provided that when the olefin is ethylene, the maximum polymerized ethylene content is about 10% and when the olefin is a 4-10 C alpha-olefin, the maximum polymerized content thereof is about 20% by weight, the copolymer having an isotactic index greater than 85;

(3) a terpolymer of propylene and two olefins selected from the group consisting of ethylene and 4-8 C alpha-olefins, provided that the maximum polymerized 4-8 C alpha-olefin content is 20% by weight, and, when ethylene is one of the olefins, the maximum polymerized ethylene content is 5% by weight, the terpolymer having an isotactic index greater than 85;

(4) an olefin polymer composition comprising:

(a) about 10% to about 60% by weight of a propylene homopolymer having an isotactic index greater than 80, or a copolymer of monomers

selected from the group consisting of (i) propylene and ethylene, (iii) propylene, ethylene and a 4-8 C alpha-olefin, and (iii) propylene and a 4-8 C alpha-olefin, the copolymer having a polymerized propylene content of more than 85% by weight and an isotactic index greater than 85;

(b) about 5% to about 25% by weight of a copolymer of ethylene and propylene or a 4-8 C alpha-olefin that is insoluble in xylene at ambient temperature; and

(c) about 30% to about 70% by weight of an elastomeric copolymer of monomers selected from the group consisting of (i) ethylene and propylene, (ii) ethylene, propylene, and a 4-8 C alpha-olefin, and (iii) ethylene and a 4-8 C alpha-olefin, the copolymer optionally containing about 0.5% to about 10% by weight of a polymerized diene and containing less than 70% by weight of polymerized ethylene and being soluble in xylene at ambient temperature and having an intrinsic viscosity, measured in decahydronaphthalene at 135°C, of about 1.5 to about 4.0 dl/g,

wherein the total amount of (b) and (c), based on the total olefin polymer composition, is about 50% to about 90%, the weight ratio of (b)/(c) is less than 0.4, and the composition is prepared by polymerization in at least two stages and has a flexural modulus of less than 150 Mpa; and

(5) a thermoplastic olefin comprising:

(a) about 10% to 60%, of a propylene homopolymer having an isotactic index greater than 80, or a copolymer of monomers selected from the group consisting of (i) ethylene and propylene, (ii) ethylene, propylene and a 4-8 C alpha-olefin, and (iii) ethylene and a 4-8 C alpha-olefin, the copolymer having a polymerized propylene content greater than 85% and an isotactic index of greater than 85;

5 (b) about 20% to about 60% of an amorphous copolymer from monomers selected from the group consisting of (i) ethylene and propylene, (ii) ethylene, propylene, and a 4-8 C alpha-olefin, and (iii) ethylene and a 4-8 C alpha-olefin, the copolymer optionally containing about 0.5% to about 10% of a polymerized diene, and containing less than 70% polymerized ethylene and being soluble in xylene at ambient temperature; and

10 (c) about 3% to about 40% of a copolymer of ethylene and propylene or a 4-8 C alpha-olefin that is insoluble in xylene at ambient temperature, wherein the thermoplastic olefin has a flexural modulus of greater than 150 but less than 1200 Mpa.

3. The composition of claim 2 wherein the propylene polymer material is a propylene homopolymer.

15 4. The composition of claim 1 wherein the monomer is a combination of methyl methacrylate and methyl acrylate.

20 5. The composition of claim 1 that additionally comprises (3) about 3 weight % to about 25 weight %, based on the total weight of the composition, of at least one rubber component selected from the group consisting of (a) an olefin copolymer rubber, (b) a monoalkenyl aromatic hydrocarbon-conjugated diene block copolymer, and (c) a core-shell rubber, wherein (1) + (2) + (3) = 100 weight percent.

6. The composition of claim 1 that additionally comprises (4) about 10% to about 60%, based on the total weight of the composition, of a broad molecular weight distribution propylene polymer material, wherein (1) + (2) + (4) = 100 weight percent.

25 7. The composition of claim 5 that additionally comprises (4) about 10% to about 60%, based on the total weight of the composition, of a broad molecular weight distribution propylene polymer material, wherein (1) + (2) + (3) + (4) = 100 weight percent.

8. The composition of claim 1 that additionally comprises about 1% to about 40%, based on the total weight of the composition, of glass fibers having a maximum length of ½ inch.

9. The composition of claim 5 that additionally comprises about 1% to about 40%, based on the total weight of the composition, of glass fibers having a maximum length of ½ inch.

10. The composition of claim 1 wherein the ratio of polymerized monomer to fluorinated polymer is 10:1 to 0.5:1.

11. A process for improving the thermal stability of a graft copolymer comprising blending

(1) a graft copolymer comprising a backbone of a propylene polymer material having graft polymerized thereto a monomer selected from the group consisting of (a) an ester of an acrylic acid substituted at the alpha carbon atom by a 1-3 alkyl group and (b) a combination of (i) an ester of an acrylic acid substituted at the alpha carbon atom by a 1-3 alkyl group and (ii) an ester of an unsubstituted acrylic acid, or an acrylic acid substituted at the alpha carbon atom by a 1-3 carbon alkyl group, and

(2) about 1 weight % to about 25 weight % of a fluorinated olefin polymer, wherein the ratio of the polymerized monomer to the fluorinated olefin polymer is about 25:1 to about 0.5:1.

12. The process of claim 11 that additionally comprises blending (1) and (2) with (3) about 3 weight % to about 25 weight %, based on the total weight of the composition, of at least one rubber component selected from the group consisting of (a) an olefin copolymer rubber, (b) a monoalkenyl aromatic hydrocarbon-conjugated diene block copolymer, and (c) a core-shell rubber, wherein (1) + (2) + (3) = 100 weight percent.

13. The process of claim 11 that additionally comprises blending (1) and (2) with (4) about 10% to about 60%, based on the total weight of the composition, of a broad molecular weight distribution propylene polymer material, wherein (1) + (2) + (4) = 100 weight percent.

14. The process of claim 12 that additionally comprises blending (1), (2), and (3) with (4) about 10% to about 60%, based on the total weight of the composition, of a broad molecular weight distribution propylene polymer material, wherein $(1) + (2) + (3) + (4) = 100$ weight percent.

5 15. The process of claim 11 that additionally comprises blending (1) and (2) with (5) about 1% to about 40%, based on the total weight of the composition, of chopped glass fibers having a maximum length of $\frac{1}{2}$ inch, wherein $(1) + (2) + (5) = 100$ weight percent.

10 16. The process of claim 12 that additionally comprises blending (1), (2), and (3) with (5) about 1% to about 40%, based on the total weight of the composition, of chopped glass fibers having a maximum length of $\frac{1}{2}$ inch, wherein $(1) + (2) + (3) + (5) = 100$ weight %.